

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

1-8 (Cancelled)

9. (New) An aerostatic suspension system for rolling equipment and vehicles comprising a cylinder-piston set,

wherein the piston (8) is linked to a suspended structure of the equipment or the vehicle by means of a cardanic joint that allows pivoting in two co-planar horizontal axes,

wherein the cylinder (7), possessing one degree of freedom along a vertical axis, is connected to a lever (3) with an adjustable point of application of force mechanism (6), and

wherein the distal end of said lever is articulated with a higher end of a wheel support rod of vehicle or equipment support.

10. (New) An aerostatic suspension system according to claim 9, wherein the piston and the cylinder are constructed out of the same material.

11. (New) An aerostatic suspension system according to claim 9, wherein said piston is provided with seals.

12. (New) An aerostatic suspension system according to claim 11, wherein at least one of the seals is an elastomeric O-ring.

13. (New) An aerostatic suspension system according to claim 11, wherein at least one of the seals comprises a ferrofluidic seal, by itself or in combination with elastomeric O-ring seals.

14. (New) An aerostatic suspension system according to claim 9, wherein said adjustable point of application of force mechanism (6) comprises a frame (23) with rollers (24) which allow displacement of said frame along a track (25), wherein said frame (23) also holds a position-adjustment threaded spindle (26), wherein on the lower end of said frame is mounted a support roller (21), wherein the point of application of force between lever (3) and roller (21) is co-linear

with the turning axis of the mounting rollers for supporting rocker arm of roller (21) so as to ensure its invariability irrespective of angular change of application of force, thus ensuring that lever arm ratio (3-A and 3-B) does not change as a leverage angle changes, and as lever (3) inclination changes, the total effective length increase does not represent a change in the lever arm ratio, given that both increase in the same proportion.

15. (New) An aerostatic suspension system for rolling equipment and vehicles comprising a cylinder-piston set,

wherein the piston (8) is linked to a suspended structure of the equipment or the vehicle by means of an articulation that allows pivoting in two co-planar horizontal axes,

wherein the cylinder (7), possessing one degree of freedom along a vertical axis, is connected to a lever (3) with an adjustable point of application of force mechanism (6),

wherein the distal end of said lever is articulated with a higher end of a wheel support rod of vehicle or equipment support,

wherein said piston is provided with seals, and

wherein at least one of the seals comprises a ferrofluidic seal, by itself or in combination with elastomeric O-ring seals.

16. (New) An aerostatic suspension system according to claim 15, wherein the piston and the cylinder are constructed out of the same material.

17. (New) An aerostatic suspension system according to claim 15, wherein the articulation is an articulated joint.

18. (New) An aerostatic suspension system according to claim 15, wherein said adjustable point of application of force mechanism (6) comprises a frame (23) with rollers (24) which allow displacement of said frame along a track (25), wherein said frame (23) also holds a position-adjustment threaded spindle (26), wherein on the lower end of said frame is mounted a support roller (21), wherein the point of application of force between lever (3) and roller (21) is co-linear with the turning axis of the mounting rollers for supporting rocker arm of roller (21) so as to ensure its invariability irrespective of angular change of application of force, thus ensuring that

lever arm ratio (3-A and 3-B) does not change as a leverage angle changes, and as lever (3) inclination changes, the total effective length increase does not represent a change in the lever arm ratio, given that both increase in the same proportion.

19. (New) An aerostatic suspension system for rolling equipment and vehicles comprising a cylinder-piston set,

wherein the piston (8) is linked to a suspended structure of the equipment or the vehicle by means of an articulation that allows pivoting in two co-planar horizontal axes,

wherein the cylinder (7), possessing one degree of freedom along a vertical axis, is connected to a lever (3) with an adjustable point of application of force mechanism (6),

wherein the distal end of said lever is articulated with a higher end of a wheel support rod of vehicle or equipment support, and

wherein said adjustable point of application of force mechanism (6) comprises a frame (23) with rollers (24) which allow displacement of said frame along a track (25), wherein said frame (23) also holds a position-adjustment threaded spindle (26), wherein on the lower end of said frame is mounted a support roller (21), wherein the point of application of force between lever (3) and roller (21) is co-linear with the turning axis of the mounting rollers for supporting rocker arm of roller (21) so as to ensure its invariability irrespective of angular change of application of force, thus ensuring that lever arm ratio (3-A and 3-B) does not change as a leverage angle changes, and as lever (3) inclination changes, the total effective length increase does not represent a change in the lever arm ratio, given that both increase in the same proportion.

20. (New) An aerostatic suspension system according to claim 19, wherein the piston and the cylinder are constructed out of the same material.

21. (New) An aerostatic suspension system according to claim 19, wherein said piston is provided with seals.

22. (New) An aerostatic suspension system according to claim 21, wherein at least one of the seals is an elastomeric O-ring.

23. (New) An aerostatic suspension system according to claim 19, wherein the articulation is an articulated joint.